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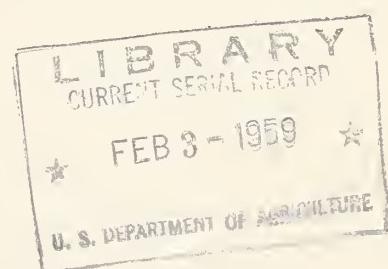
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UNITED STATES DEPARTMENT OF AGRICULTURE  
Agricultural Marketing Service  
Cotton Division  
Washington, D.C.

COTTON FIBER AND PROCESSING TEST RESULTS  
CROP OF 1958



AMS-271  
Supplement No. 10

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## COTTON FIBER AND PROCESSING TEST RESULTS

Results of 1958-crop cotton through January 9, 1959 continues to show improvement over 1957 in nonlint content and picker and card waste (table 1). Average number of neps per 100 square inches of card web is somewhat higher than last year in the Southeastern and South Central areas and lower in the Southwestern and Western areas. Yarn appearance grades are approximately one-half grade lower than the 1957 average in all areas except in the Southeastern area where the average yarn appearance index is almost the same as last year. Skein strength of 22s yarn is considerably higher than last year's average in the Southeastern area and slightly lower in the other cotton producing areas. For the crop as a whole, yarn strength is averaging 115 pounds for 22s yarn, the same as in 1957.

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Prepared in the Standards and Testing Branch, AMS

Table 1.-Cotton: Averages of fiber and processing tests from selected gin points tested through January 9, 1957-1958 1/

Item		Southeastern	South Central	Southwestern	Western	U.S. Average
	1957	1958	1957	1958	1957	1958
Fineness (Micronaire)-----reading:	4.2	4.1	4.4	4.3	4.1	4.3
Maturity (Causticaine)-----index:	78	77	79	78	71	78
Fiber strength (Pressley)1,000 psi:	80	79	78	78	80	80
Nonlint content-----percent:	3.4	2.5	3.3	2.7	3.4	2.7
Picker and card waste-----percent:	8.4	7.6	8.8	7.7	11.2	7.8
Neps----per 100 sq. in. of card web:	16	20	12	14	16	14
Strength of 22s yarn-----pounds:	110	115	113	111	113	111
Average yarn appearance-----index:	102	101	100	94	101	96
Number lots to date-----	74	107	104	123	140	123

1/ Based on a limited number of samples of model quality from selected gin points in the United States.

Table 2.--Results of classification, fiber tests, and carded yarn processing tests for specified varieties of cotton by state, market area, and period of harvest, processed at a card production rate of 9-1/2 pounds per hour and a twist multiplier of 4.00, crop of 1958

Variety	Acala 4-42		Acala WR-44
State	Arizona	California	Arizona
Market area	Queen Creek*	Thermal	Avra
Percentage of variety at gin	55*	100	45*
Period of harvest	Late	Late	Late
RAW COTTON QUALITY	:	:	:
Classification (official standards):	:	:	:
Grade-----designation:	M	SIM+	SIM+
Staple length-----inches:	1-1/32	1-1/32	1-1/32
Fiber length (Fibrograph):	:	:	:
Upper half mean-----inches:	1.04	1.04	1.01
Uniformity-----ratio:	79	81	74
Fiber fineness and maturity:	:	:	:
Micronaire-----reading 1/:	4.6	4.5	3.5
Fineness (Causticaire)---ug/inch 2/:	4.4	4.4	3.3
Maturity ( " )-----index:	81	80	74
Fiber tensile strength (Pressley):	:	:	:
Zero gauge-----1,000 p.s.i.:	91	96	89
" " -----grams per tex 3/:	45.0	47.5	44.1
1/8" " " " " :	24.6	27.2	22.6
Nonlint content: 4/	:	:	:
Visible waste-----percent:	2.1	2.2	3.8
Invisible waste-----" :	1.0	0.6	1.3
Total nonlint content-----" :	3.1	2.8	5.1
Color of raw cotton: 5/	:	:	:
Reflectance-----Rd:	78.5	74.7	77.7
Yellowness-----+b:	8.3	8.4	8.2
Sugar content-----percent:	0.2	0.2	0.2
Acid-alkaline value-----pH units 6/:	6.8	7.0	6.8
PROCESSING RESULTS	:	:	:
Manufacturing waste:	:	:	:
Picker and card-----percent:	6.8	7.7	9.3
Neps-----per 100 sq. in. of card web:	8	7	22
Yarn skein strength:	:	:	:
22s (26.8 tex)-----pounds:	132	136	117
50s (11.8 " )-----" :	46	48	41
Average break factor-----7/:	2602	2696	2312
Yarn appearance:	:	:	:
22s (26.8 tex)-----grade:	C+	C	D
50s (11.8 " )-----" :	C	D+	D
Average yarn appearance-----index 8/:	95	85	70

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For footnotes see page 11.

\*Samples selected from one-variety growers.

Table 2.--Results of classification, fiber tests, and carded yarn processing tests for specified varieties of cotton by state, market area, and period of harvest, processed at a card production rate of 9-1/2 pounds per hour and a twist multiplier of 4.00, crop of 1958--Continued

Variety	:	Arizona 44			
State	:	Arizona			
Market area	:	Chandler	Eloy	Horn	Parker
Percentage of variety at gin	:	90	85	100	98
Period of harvest	:	Late	Late	Late	Late
RAW COTTON QUALITY	:	:	:	:	:
Classification (official standards):	:	:	:	:	:
Grade-----designation:	SIM	Msp	M	M	
Staple length-----inches:	1-1/32	1	1-1/16	1-1/16	
Fiber length (Fibrograph):	:	:	:	:	
Upper half mean-----inches:	1.04	1.02	1.06	1.04	
Uniformity-----ratio:	78	78	76	77	
Fiber fineness and maturity:	:	:	:	:	
Micronaire-----reading 1/:	4.1	3.3	4.4	4.1	
Fineness (Causticaire)---ug/inch 2/:	3.9	3.2	4.2	3.9	
Maturity ( " )-----index:	79	72	80	78	
Fiber tensile strength (Pressley):	:	:	:	:	
Zero gauge-----1,000 p.s.i.:	85	89	91	93	
" " -----grams per tex 3/:	42.1	44.1	45.0	46.0	
1/8" " " " " :	23.5	23.6	23.5	24.2	
Nonlint content: 4/	:	:	:	:	
Visible waste-----percent:	3.6	2.9	1.5	1.8	
Invisible waste-----" :	1.2	1.5	0.5	1.3	
Total nonlint content-----" :	4.8	4.4	2.0	3.1	
Color of raw cotton: 5/	:	:	:	:	
Reflectance-----Rd.:	70.6	71.1	75.6	77.5	
Yellowness-----+b.:	8.8	10.9	8.9	8.7	
Sugar content-----percent:	0.2	0.3	0.3	0.2	
Acid-alkaline value-----pH units 6/:	6.8	7.0	6.8	7.2	
PROCESSING RESULTS	:	:	:	:	
Manufacturing waste:	:	:	:	:	
Picker and card-----percent:	9.1	8.7	7.1	7.9	
Neps-----per 100 sq. in. of card web:	14	45	9	10	
Yarn skein strength:	:	:	:	:	
22s (26.8 tex)-----pounds:	116	128	122	123	
50s (11.8 " )-----" :	42	47	43	43	
Average break factor-----7/:	2326	2583	2417	2428	
Yarn appearance:	:	:	:	:	
22s (26.8 tex)-----grade:	D+	D	C+	C+	
50s (11.8 " )-----" :	BG	BG	C	D+	
Average yarn appearance-----index 8/:	70	65	95	90	

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Table 2.--Results of classification, fiber tests, and carded yarn processing tests for specified varieties of cotton by state, market area, and period of harvest, processed at a card production rate of 9-1/2 pounds per hour and a twist multiplier of 4.00, crop of 1958--Continued

Variety	Arizona 44	Deltapine 15		
State	Arizona	Alabama : California		
Market area	Peoria	Yuma	Tuscaloosa	Brawley
Percentage of variety at gin	90	95	95	100
Period of harvest	Late	Late	Late	Late
RAW COTTON QUALITY				
Classification (official standards):				
Grade-----designation:	M	M	SIM	SIM
Staple length-----inches:	1-1/16	1-1/32	1-1/32	1-1/32
Fiber length (Fibrograph):				
Upper half mean-----inches:	1.06	1.04	1.00	1.00
Uniformity-----ratio:	77	77	78	78
Fiber fineness and maturity:				
Micronaire-----reading 1/:	4.2	4.2	4.2	4.6
Fineness (Causticaire)---ug/inch 2/:	4.0	4.1	4.3	4.6
Maturity ( " )-----index:	80	78	77	80
Fiber tensile strength (Pressley):				
Zero gauge-----1,000 p.s.i.:	93	94	76	86
" " -----grams per tex 3/:	46.0	46.5	37.9	42.6
1/8" " " " " :	24.4	24.4	20.4	22.0
Nonlint content: 4/				
Visible waste-----percent:	1.9	1.5	2.9	1.3
Invisible waste-----" :	1.1	0.5	1.0	0.6
Total nonlint content-----" :	3.0	2.0	3.9	1.9
Color of raw cotton: 5/				
Reflectance-----Rd:	75.4	74.6	71.5	77.4
Yellowness-----+b:	8.9	9.3	8.1	7.9
Sugar content-----percent:	0.2	0.3	0.0	0.1
Acid-alkaline value-----pH units 6/:	7.0	6.6	8.3	7.0
PROCESSING RESULTS				
Manufacturing waste:				
Picker and card-----percent:	7.4	7.4	8.9	7.6
Neps-----per 100 sq. in. of card web:	10	9	10	6
Yarn skein strength:				
22s (26.8 tex)-----pounds:	125	125	109	112
50s (11.8 " )-----" :	44	43	38	38
Average break factor-----7/:	2475	2450	2149	2182
Yarn appearance:				
22s (26.8 tex)-----grade:	C+	C	C+	C+
50s (11.8 " )-----" :	D+	D	C	C+
Average yarn appearance-----index 8/:	90	80	95	100

Continued on page 7

Table 2.--Results of classification, fiber tests, and carded yarn processing tests for specified varieties of cotton by state, market area, and period of harvest, processed at a card production rate of 9-1/2 pounds per hour and a twist multiplier of 4.00, crop of 1958--Continued

Variety	Deltapine 15			
State	California	Mississippi	Texas	
Market area	Westmorland	Edwards	Mt.Olive	Texarkana
Percentage of variety at gin	100	90	75	90
Period of harvest	Late	Late	Late	Late
RAW COTTON QUALITY				
Classification (official standards):				
Grade-----designation:	M	SIMltsp	SIMltsp	Mltsp
Staple length-----inches:	1-1/32	1-1/32	1	1-3/32
Fiber length (Fibrograph):				
Upper half mean-----inches:	1.02	1.02	.99	1.09
Uniformity-----ratio:	76	76	76	79
Fiber fineness and maturity:				
Micronaire-----reading 1/:	4.6	4.9	4.7	3.8
Fineness (Causticaire)---ug/inch 2/:	4.5	5.0	5.0	3.6
Maturity { " }-----index:	80	81	78	77
Fiber tensile strength (Pressley):				
Zero gauge-----1,000 p.s.i.:	87	78	75	75
" " -----grams per tex 3/:	43.1	38.6	37.1	37.1
1/8" " -----" " " :	22.5	19.4	19.7	21.0
Nonlint content: 4/				
Visible waste-----percent:	1.2	1.5	3.0	1.7
Invisible waste-----" :	1.1	1.5	2.5	1.3
Total nonlint content-----" :	2.3	3.0	5.5	3.0
Color of raw cotton: 5/				
Reflectance-----Rd:	77.0	67.4	67.5	76.5
Yellowness-----+b:	8.1	8.9	8.4	8.9
Sugar content-----percent:	0.1	0.0	0.0	0.2
Acid-alkaline value-----pH units 6/:	7.2	8.1	7.3	6.9
PROCESSING RESULTS				
Manufacturing waste:				
Picker and card-----percent:	7.4	8.4	11.1*	8.2
Neps-----per 100 sq. in. of card web:	8	4	4	9
Yarn skein strength:				
22s (26.8 tex)-----pounds:	115	92	97	115
50s (11.8 " )-----" :	40	32	34	41
Average break factor-----7/:	2265	1812	1917	2290
Yarn appearance:				
22s (26.8 tex)-----grade:	B	B	B	C+
50s (11.8 " )-----" :	C	C+	C+	C
Average yarn appearance----index 8/:	100	105	105	95

For footnotes see page 11.

\*Net weight fed picker less than five pounds, therefore waste results not considered reliable.

Table 3.--Results of classification, fiber tests, and carded and combed (in parentheses) yarn processing tests for specified varieties of cotton by state, market area, and period of harvest, processed at a card production rate of 6-1/2 pounds per hour and a twist multiplier of 3.80, crop of 1958

Variety		Acala 1517C			:Arizona 44
State		New Mexico			: Arizona
Market area	Dexter	Lake Arthur	Loving	Loving	Marana
Percentage of variety at gin	88	90	92	92	80
Period of harvest	Late	Late	Late	Late	Late
RAW COTTON. QUALITY					
Classification (official standards):					
Grade-----designation:	SIM	SIM	SIM	SIM	M
Staple length-----inches:	1-3/32	1-1/16	1-1/8	1-1/8	1-1/16
Fiber length (Fibrograph):					
Upper half mean-----inches:	1.12	1.09	1.14	1.14	1.07
Uniformity-----ratio:	77	76	77	77	78
Fiber fineness and maturity:					
Micronaire-----reading 1/:	3.6	3.4	3.8	3.8	4.1
Fineness (Causticaire)---ug/inch 2/:	3.6	3.4	3.9	3.9	4.1
Maturity ( " )-----index:	75	73	76	76	78
Fiber tensile strength (Pressley):					
Zero gauge-----1,000 p.s.i.:	84	85	82	82	89
" " -----grams per tex 3/:	41.6	41.9	40.6	40.6	44.2
1/8" " -----" " " :	24.6	24.7	23.7	23.7	23.7
Nonlint content: 4/					
Visible waste-----percent:	2.4	1.3	2.0	2.0	1.6
Invisible waste-----" :	1.4	1.4	0.6	0.6	1.1
Total nonlint content-----" :	3.8	2.7	2.6	2.6	2.7
Color of raw cotton: 5/					
Reflectance-----Rd:	78.5	77.7	73.7	73.7	76.5
Yellowness-----+b:	7.3	7.6	7.7	7.7	7.9
Sugar content-----percent:	0.1	0.2	0.1	0.1	0.2
Acid-alkaline value-----pH units 6/:	8.0	7.8	8.7	8.7	6.8
PROCESSING RESULTS					
Manufacturing waste:					
Picker and card-----percent:	8.9	8.8	7.8	7.8	8.1
Comber-----" :	13.4	14.1	12.9	12.9	14.7
Neps-----per 100 sq. in. of card web:	21	28	12	12	17
Yarn skein strength:					
22s (26.8 tex)-----pounds:	135( 146)	132( 145)	133( 143)	126( 140)	
50s (11.8 " )-----" :	48( 52)	47( 52)	47( 51)	45( 50)	
Average break factor-----7/:	2685(2906)	2627(2895)	2638(2848)	2511(2790)	
Yarn appearance:					
22s (26.8 tex)-----grade:	D+(C)	D+(C)	C+(B)	C (C+)	
50s (11.8 " )-----" :	D+(C)	D (D+)	C (C+)	C (C)	
Average yarn appearance----index 8/:	80(90)	75(85)	95(105)	90(95)	

Table 4.--Results of classification, fiber tests, and combed yarn processing tests for specified varieties of cotton by state, market area, and period of harvest, processed at a card production rate of 4-1/2 pounds per hour and a twist multiplier of 3.60, crop of 1958

Variety	:	Pima S-1		
State	:	Arizona		
Market area	:	Peoria	Safford	Stanfield
Percentage of variety at gin	:	100	100	100
Period of harvest	:	Late	Late	Late
	:	:	:	:
RAW COTTON QUALITY	:	:	:	:
Classification (official standards):	:	:	:	:
Grade-----designation:	4	3	4	
Staple length-----inches:	1-3/8	1-7/16	1-3/8	
Fiber length (array):	:	:	:	
Upper quartile-----inches:	1.45	1.44	1.38	
Coefficient of variability--percent:	29	27	29	
Fiber fineness and maturity:	:	:	:	
Micronaire-----reading 1/:	3.8	3.6	3.7	
Fineness (Causticaire)---ug/inch 2/:	3.3	3.2	3.3	
Maturity ( " )-----index:	80	78	79	
Fiber tensile strength (Pressley):	:	:	:	
Zero gauge-----1,000 p.s.i.:	94	99	98	
" " -----grams per tex 3/:	46.7	48.9	48.4	
1/8" " " " " :	32.2	33.2	33.3	
Nonlint content: 4/	:	:	:	
Visible waste-----percent:	2.4	2.1	1.7	
Invisible waste-----" :	1.1	0.7	0.9	
Total nonlint content-----" :	3.5	2.8	2.6	
Color of raw cotton: 5/	:	:	:	
Reflectance-----Rd:	69.5	70.5	72.5	
Yellowness-----+b:	10.3	10.8	10.6	
	:	:	:	
Sugar content-----percent:	0.2	0.2	0.3	
Acid-alkaline value-----pH units 6/:	6.4	6.3	6.3	
	:	:	:	
PROCESSING RESULTS	:	:	:	
Manufacturing waste:	:	:	:	
Picker and card-----percent:	11.5	9.6	11.0	
Comber-----" :	13.7	12.5	14.7	
Neps-----per 100 sq. in. of card web:	12	8	8	
Yarn skein strength:	:	:	:	
50s (11.8 tex)-----pounds:	69	69	71	
80s ( 7.4 " )-----" :	39	39	40	
Average break factor-----7/:	3285	3285	3375	
Yarn appearance:	:	:	:	
50s (11.8 tex)-----grade:	B	B	B	
80s ( 7.4 " )-----" :	C+	C+	C+	
Average yarn appearance-----index 8/:	105	105	105	
	:	:	:	

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Table 4.--Results of classification, fiber tests, and combed yarn processing tests for specified varieties of cotton by state, market area, and period of harvest, processed at a card production rate of 4-1/2 pounds per hour and a twist multiplier of 3.60, crop of 1958--Continued

Variety		Pima S-1	
State	New Mexico		Texas
Market area	Mesilla Park		Fabens
Percentage of variety at gin	95		95
Period of harvest	Late		Late
RAW COTTON QUALITY			
Classification (official standards):			
Grade-----designation:	2	:	3
Staple length-----inches:	1-7/16	:	1-7/16
Fiber length (array):			
Upper quartile-----inches:	1.40	:	1.41
Coefficient of variability--percent:	30	:	28
Fiber fineness and maturity:			
Micronaire-----reading 1/:	3.4	:	3.5
Fineness (Causticaire)---ug/inch 2/:	3.1	:	3.0
Maturity ( " )-----index:	77	:	78
Fiber tensile strength (Pressley):			
Zero gauge-----1,000 p.s.i.:	94	:	95
" " -----grams per tex 3/:	46.6	:	47.2
1/8" " " " " :	32.6	:	32.3
Nonlint content: 4/			
Visible waste-----percent:	0.8	:	1.5
Invisible waste-----" :	1.2	:	1.5
Total nonlint content-----" :	2.0	:	3.0
Color of raw cotton: 5/			
Reflectance-----Rd:	71.6	:	68.5
Yellowness-----+b:	10.7	:	11.0
Sugar content-----percent:	0.1	:	0.1
Acid-alkaline value-----pH units 6/:	6.2	:	6.4
PROCESSING RESULTS			
Manufacturing waste:			
Picker and card-----percent:	10.9	:	9.7
Comber-----" :	13.3	:	19.2
Neps-----per 100 sq. in. of card web:	13	:	22
Yarn skein strength:			
50s (11.8 tex)-----pounds:	68	:	69
80s ( 7.4 " )-----" :	39	:	39
Average break factor-----7/:	3260	:	3285
Yarn appearance:			
50s (11.8 tex)-----grade:	C+	:	C+
80s ( 7.4 " )-----" :	C	:	C
Average yarn appearance-----index 8/:	95	:	95

For footnotes see page 11.

FOOTNOTES

- 1/ Fiber fineness and maturity in combination as measured on untreated samples using the cuvilinear scale for upland cotton.
- 2/ Fineness and maturity as determined by the Causticaire method using the Micronaire instrument.
- 3/ Tex is the universal unit for designating linear density of textile materials as adopted by the International Standards Organization (ISO). A tex unit equals the weight in grams of 1,000 meters of the material.
- 4/ As determined by means of the Shirley Analyzer.
- 5/ Determined by the Nickerson-Hunter Colorimeter on raw stock. Rd values indicate percent reflectance from 0 to 100 and +b values indicate degree of yellowness.
- 6/ Values below 7.0 indicate acidity. Values above 7.0 indicate alkalinity which when associated with abnormally low sugar content may indicate fiber degradation due to weathering or from the action of micro-organisms.
- 7/ Based on yarn skein strength (number x strength) of the two yarn numbers spun.
- 8/ Based on two numbers spun. Index of average quality equals 100.

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